

## **REMARKS**

### **Request for Reconsideration**

Applicants have carefully considered the matters raised by Examiner in the outstanding Office Action, but remain of the position that patentable subject matter is present. Applicants respectfully request reconsideration of Examiner's position based on the amendments to the claims, and the following remarks.

### **Drawings**

The drawings had been objected because no drawing illustrated a U-shaped accessory with both side flanges greater in length than the receiving section as recited in claim 3.

Claim 3 has been amended to recite "at least one" of the side flanges of the U-shaped accessories is greater in length than the side flange of the H-shaped receiving section. Figures 6 and 7 illustrate the "at least one" side flange of the U-shaped accessory having a length greater than the length of the side flange of the H-shaped receiving section.

### **Claim Status and Comments**

Claims 1-6 are pending. Claims 1, 3 and 6 have been amended.

Claim 3 has been amended to address the objections to the drawings.

Claims 1 and 6 have been amended to make explicit what was implicit, namely that the U-shaped accessory is a unitary member and in direct contact with both the side flanges and the web.

Claim 1 has also been amended to particularly point out that the claimed assembly comprises the H-shaped receiving section.

Respectfully, such amendments should be entered because such limitations were implicit in the claims as previously presented and were argued in the last amendment. Thus, such does not present new matter to the Examiner.

#### Claim Rejections – 35 U.S.C. § 102

Claim 1 had been rejected as anticipated by Takeuchi, *et al.* (U.S. Patent No. 6,739,099) (hereinafter Takeuchi).

Claims 1 has been amended to recite that the U-shaped accessories of the claimed invention is a single piece (i.e., a unitary member) and that it directly contacts both side flanges and the web.

Unlike the claimed invention, Takeuchi does not disclose U-shaped assembly accessories, which are each a single piece, and which are fitted between and directly contact side flanges and a web of an H-shaped receiving section.

As shown in Figure 2, Takeuchi discloses a H-shaped steel column (1a(1)) and reinforcing members (20). Reinforcing members (20) are L-shaped and reinforced with a triangular reinforcing plate (23). The reinforcing members (20) of Takeuchi are shown adjacent to the flanges (2) of the H-shaped steel column (1a). The reinforcing members (20) are fastened to the flanges using anchoring screws (3), which pass through holes in the reinforcing members (20) and the flanges (2). The accessory parts are not equivalent to the U-shaped accessories of the claimed invention, which are each a single structure. As shown in Figure 2 of Takeuchi, two reinforcing members are fixed on each side of the

H-shaped steel column; Takeuchi does not disclose a single member that is U-shaped. Moreover, the reinforcing members of Takeuchi do not directly contact the flanges and a web of H-shaped steel column, each reinforcing members only independently contacts one flange of the H-shaped steel column. Thus, Takeuchi does not anticipate the claimed invention and the claimed invention is distinguishable and patentable over Takeuchi.

The L-shaped reinforcing members (20) are not in contact with each other and, thus, the assembly of reinforcing members Takeuchi is not equivalent to a U-shape.

The capacity for transmitting moments between the pieces of the union is the concept of rigidity in an assembly, and the concept is one that is known to one of ordinary skill in the art of structural engineering. The concept of rigidity is also clearly defined in the prior art. A rigid structural assembly is one that permits different metallic pieces that form a union to transmit forces and bending moments between each other with high values that reaches the resistance of the piece before breaking. Non-rigid assemblies, such as the one disclosed in Takeuchi, can transmit the same value of forces as rigid structures, but cannot transmit bending moments between them. Additionally, a rigid assembly is one in which the angular strain between its bars does not reduce their resistance more than 5% (must be able to transmit between the bars at least 95% of the resistance needed in the union).

In the claimed invention, the traction and compression stresses that act in the longitudinal axis of the secondary sections (3) and which are perpendicular to the flanges of the receiving section (2), are transmitted through a frontal plate and follow a path wherein the stresses are transferred between two secondary sections, perpendicular to the

flanges of the receiving section. Thus, the stresses pass only through the section of the accessory pieces (1) and do not need to be transmitted through the section of the receiving section.

Contrarily, Takeuchi Applicants presume the H-shaped steel beam, or secondary sections (7), are placed on both sides of the steel column, or receiving section (1a(1)). even though it does not appear in Figure 2. There, the path of the traction and compression stresses that act in the longitudinal axis of the secondary sections cannot be transmitted similar to the path of the traction and compression stresses in the claimed invention because the L-shaped reinforcing members (20) are not joined together so that the stresses can only be transmitted through the section of the receiving section and the capacity for transmitting stresses between each two opposite accessory pieces is reduced.

Furthermore, in the claimed invention, the traction and compression stresses, which act according to the longitudinal axis of the secondary sections and which are perpendicular to the flanges of the receiving section, are the stresses produced by a bending moment that act over the sections, the claimed invention permits the transmission of greater bending moments between each two opposite secondary sections than Takeuchi.

Thus, in view of the discussion above, Takeuchi does not disclose a rigid assembly.

Claim Rejections – 35 U.S.C. § 103

The following rejections have been made under 35 U.S.C. § 103(a): (a) claim 1 had been rejected as being unpatentable over Pantenaude (U.S. Patent No. 3,685,866) in view of Takeuchi, *et al.* (U.S. Patent No. 6,739,099); (b) claim 5 had been rejected as being unpatentable over Takeuchi in view of McCracken (U.S. Patent No. 5,426,906); (c) claim 6 had been rejected as being unpatentable over Pantenaude in view of Perreira, *et al.* (U.S. Patent No. 5,244,300); (d) claims 2 and 4 had been rejected as being unpatentable over Pantenaude in view of Perreira, as applied to claim 6 above, and further in view of Takeuchi; and (e) claim 3 had been rejected as being unpatentable over Pantenaude in view of Perreira, as applied to claim 6 above, and further in view of Simmons (U.S. Patent No. 6,802,169).

Claim 1 is distinguishable from and patentable over Pantenaude in view of Takeuchi. As noted above, claim 1 has been amended to further define the U-shaped accessories of the claimed invention and their arrangement with respect to the receiving structure.

Unlike the claimed invention as disclosed in claim 1, neither Pantenaude, nor Takeuchi disclose U-shaped assembly accessories, which are each a single piece, and which are fitted between and directly contact side flanges and a web of a receiving section to form a fastening structure for secondary sections by means of anchoring screws which pass through the receiving section, the secondary sections and the accessories.

Applicants respectfully disagree with the Examiner that Patenaude discloses column (70) of has a support piece (76) located between receiving section side flanges and a web to form a fastening structure and that Patenaude in view of Takeuchi discloses

the claimed invention. Patenaude does not disclose U-shaped accessories as disclosed in the claimed invention. The support pieces (71, 76) are welded to a web face (77) and a corresponding web piece (78) is attached to the end of the beam (75). (see, Patenaude col. 4, lines 33-36). As shown in Figures 11 and 12 of Patenaude, the support piece is not a single U-shaped piece that fitted between and directly contacts side flanges and a web of an H-shaped receiving section, rather the support piece is an elongated fitting with a lower part and a “dovetail” section that is a trapezium which prevents the “male” section to be coupled in the hollow section. Also, the support piece is mounted on a side(s) of a column, it is not fitted between and directly contacts side flanges and a web of an H-shaped receiving section, the support piece is only designed for connection with the second beam (75). As noted above, claim 1 is distinguishable from and patentable over Takeuchi. Thus, Takeuchi does not overcome the deficiencies of Patenaude. Therefore, claim 1 is distinguishable from and patentable over Patenaude in view of Takeuchi.

Applicants also note Patenaude does not allow for the continuity of stresses between opposite secondary sections without depending on the receiving sections. Thus, Patenaude is not a rigid assembly.

With regard to claim 5, as discussed above, claim 1 is distinguishable from and patentable over Takeuchi. McCracken does not overcome the deficiencies of Takeuchi. Therefore, since claim 5 is dependent upon claim 1, claim 5 is patentable over Takeuchi in view of McCracken.

Claim 6 is patentable over Pantenaude in view of Perreira. Similar to claim 1, claim 6 has been amended to further define the U-shaped accessories of the claimed invention and their arrangement with respect to the receiving structure.

Unlike the claimed invention as disclosed in claim 6, neither Pantenaude, nor Perreira disclose U-shaped assembly accessories, which are each a single piece, and which are fitted between and directly contact side flanges and a web of a receiving section to form a fastening structure for secondary sections by means of anchoring screws which pass through the receiving section, the secondary sections and the accessories.

As discussed above in relation to claim 1, Pantenaude does not disclose U-shaped assemblies as disclosed in the claimed invention. Also, one of ordinary skill in the art would not have attempted to combine the front surface (234) of Perreira with Pantenaude. There is not a need to combine the front plate of Perreira and the front plate would not aid in connecting the second beam of Pantenaude with the support piece. Further, the front surface of Perreira resembles a trapezoidal wedge. The shape is not conducive to being joined to the support pieces of Pantenaude. Thus, claim 6 is distinguishable from and patentable over Pantenaude in view of Perreira.

Claims 2-4 are dependent upon claim 6, which as discussed above is distinguishable from and patentable over Pantenaude in view of Perreira. With regard to claims 2 and 4, Takeuchi does not cure the deficiencies of Pantenaude and/or Perreira. With regard to claim 3, Simmons does not cure the deficiencies of Pantenaude and/or Perreira. Therefore, since claims 2-4 are dependent upon claim 6 and Takeuchi or Simmons do not cure the deficiencies of Pantenaude in view of Perreira, claims 2-4 are patentable over the prior art references as well.

Conclusion


In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and such action is respectfully requested.

Should any extensions of time or fees be necessary in order to maintain this Application in pending condition, appropriate requests are hereby made and authorization is given to debit Account Number 02-2275.

Respectfully submitted,

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